

RIVERS, STREAMS, and BROOKS ASSESSMENT

Background

Like lakes and ponds, Maine is blessed with an abundance of rivers and streams. The primary sources for all Maine rivers are the smaller brooks and streams, which often begin in the mountains. Fed by underground springs or from rain and melting snow, brooks and streams flow downhill, merge to become larger streams, and eventually all become rivers flowing to the sea. A variety of important aquatic animals and plants live along the entire course.

River waters have been harnessed to produce electricity, benefiting all Maine citizens. Our rivers have also been used as dumping sites for the refuse of industry and waterfront communities, taking a heavy toll on water quality. Over the years, extensive efforts have been made to clean up Maine rivers. Sewage treatment plants have been installed and upgraded. The amount of industrial wastewater has been reduced and is monitored. Dams have been fitted with fish ladders allowing salmon to return to their spawning grounds. In addition, businesses like canoeing and sport fishing have created a stream of tourist dollars to interior Maine. Maine rivers are cleaner now than they have been in generations, yet there is still work to be done.

While the impact of **point source pollution** (pages 1 & 7) has been lessened over the years, it is still a concern in some places as are dioxin and other toxins (such as PCBs and heavy metals). Hydropower, although relatively clean and renewable, can also have a negative impact on aquatic life. Development along riverbanks today continues to be a problem, creating more ways for **nonpoint source pollution** (pages 1 & 7) to enter the water. This major type of pollution threatens the life in and next to streams and rivers, as it does to Maine lakes and ponds. Taking responsibility for activities in our own backyard is an important way each of us can help protect Maine's rivers.

Biological monitoring is one major means of gathering data on the quality of riverine waters. This is a method by which bottom dwelling aquatic insects in selected areas are captured. Studying the samples can reveal that a pollution source is impacting the water around the samples, and thus, the insects themselves. Some insects are less tolerant of pollution than others. For example, an absence or low population of mayflies or stoneflies (in their immature stages) might indicate a problem upstream of the sampling site. The Biological Monitoring Program has established 260 biomonitoring stations on 84 rivers and streams. The program has been looked to as a model by other states in assessing water quality and its impacts.



Assessment

Contact: David Courtemanch, DEP BLWQ, Division of Environmental Assessment, (207) 287-7789 or 3901.

Biological Monitoring Program Questions: Leon Tsomides @ 287-7844 or Susan Davies @ 287-7778.

T

There are more watercourse miles in Maine suitable for fishing and swimming on smaller watercourses than on larger rivers. This is due to patterns of settlement and industrialization in Maine. Because of the greater potential for development of major Maine rivers, water pollution problems are most severe there. There has been an overall increase in swimmable miles and a slight overall decrease of fishable miles since the 1994 assessment.



Main Stems of Major Rivers

Nineteen Maine rivers with a drainage area greater than 500 square miles deserve special attention when rating total water quality. This is due to settlement patterns as well as the potentially greater opportunities for recreation and habitat on these major rivers. Eleven of the 19 rivers are tributaries of still larger rivers. Five of the 19 rivers (the Allagash, Dead, Fish, East Branch and West Branch of the Penobscot) lie in remote areas and can be characterized as pristine (with the exception of the West Branch, these rivers are classified AA or A). Six of these 19 rivers (the Mattawamkeag, Moose, Piscataquis, Saco, Sandy, and Union) are less densely settled and industrialized than the following group but historically had segments with pollution problems.

The remaining eight of the 19 rivers (the Androscoggin, Aroostook, Kennebec, Penobscot, Presumpscot, Saint Croix, Sebasticook and Saint John) are pristine in their upper watersheds but pass through urban, industrial and agricultural areas in their lower reaches. Prior to the treatment of industrial and municipal wastewater, these eight rivers had serious pollution problems in their lower reaches. The Androscoggin River was once characterized as one of the ten most polluted rivers in the nation.

Significant progress has been made since the 1994 assessment. Most notable is a gain of 115 miles attaining swimmable standards. This is due to several large segments of the Androscoggin and Penobscot Rivers improving their water color quality and the removal of a significant bacteria source originating in New Hampshire that affected a segment of the Androscoggin in Maine. Dioxin contamination however, continues to be a significant cause of non-attainment of uses (mercury and PCBs have now been reported in 1997).

Maine Attainment Status: Major Rivers

Maine <u>River Name</u>	<u>Length (miles)</u>	<u>Fishable¹ miles</u>	<u>Fishable/ Swimmable² miles</u>	<u>Swimmable miles</u>	
Androscoggin³	124	0	100	0	(0%)
Kennebec³	145	89	89	89	(61%)
Dead	22	22	22	22	(100%)
Moose	13	13	13	13	(100%)
Sandy	86	86	86	86	(100%)
Sebasticook	50	48	48	48	(96%)
Penobscot³	80	24	71	24	(29%)
East Branch	46	46	46	46	(100%)
Mattawamkeag	48	48	48	48	(100%)
Piscataquis	47	47	47	47	(100%)
West Branch	36	31	33	28	(78%)
Presumpscot	23	16	16	16	(70%)
Saco	81	80.5	80.5	80.5	(99%)
Saint Croix	30	27	30	27	(90%)
Saint John⁴	161	161	159	159	(99%)
Allagash	64	64	64	64	(100%)
Aroostook	69	69	69	69	(100%)
Fish	13	13	13	13	(100%)
Union	3	3	3	3	(100%)
TOTAL MILES	1141	887.5	1037.5	882.5	

¹ Those which attain the criteria for protection and propagation of fish and wildlife and fish consumption..

² Those which attain the criteria for recreation in and on the water.

³ Segments of the Androscoggin (124 miles), Kennebec (56 miles) and Penobscot (56.5 miles) Rivers do not fully attain the interim goal of fishable due to the presence of dioxin in fish tissues (see pages 8 & 9 for 1997 fish advisories data). The State Toxicologist has issued an advisory to limit consumption of fish from these rivers.

⁴ That portion of the basin upstream of the Hamlin, Maine - Grand Falls, New Brunswick boundary.

The most significant cause for not fully supporting the uses of the main stem rivers is the presence of fish tissue contaminants from industrial sources. Additional problems are caused by discharges of untreated municipal wastewater (combined sewer overflows—see page 7), inadequate sewers or treatment facilities, and stormwater.

Small Streams

Small stream segments totalling 194 miles are found to be in nonattainment from all causes. This is a slight increase over the 1994 assessment but reflects the inclusion of new waters. The inclusion of new segments is usually due to **nonpoint source pollution** (pages 1 & 7). Despite the increase of nonattainment miles, a number of waters have been improved and removed from the list of nonattainment waters (found in Chapter 4 of Appendix I). As in previous years, most documented progress has been made where treatment could be applied to point sources.

Each stream segment in Maine which does not attain classification standards is identified in Chapter 4 of Appendix I along with a description of the cause(s) of non-attainment in the complete 305(b).

Water Quality Trends

The best information regarding water quality trends is for large rivers where monitoring is more continuous and sweeping. These waters show a continued trend toward improvement. The Maine DEP has established a goal to remove dioxin advisories by the year 2002. Paper mills have pledged to adopt technology to reduce dioxin.

Toxic contamination appears to be a significant concern for the state in coming years. With the repopulation of fisheries on many rivers following waste removal in the 1970's, we are finding that some populations carry significant contaminant burdens. Recent sampling for dioxin has shown some decline of this contaminant in fish tissues, however fish consumption advisories are still continuing for dioxin on certain sections of rivers. Mercury contamination is another primary concern that has not yet been fully assessed for rivers for this report (mercury, along with PCB's, are now a reason for impairment of rivers—see pages 8 & 9).

A number of new segments associated with hydropower facilities have been listed as nonattainment based on information received during the relicensing process of these facilities. The Maine DEP has taken an active role in the relicensing of hydroelectric facilities in the state. New certifications have required re-adjusting flows, usually increasing minimum flows to benefit aquatic life in and below many impoundments.

